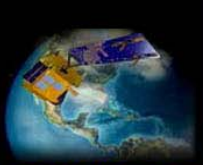


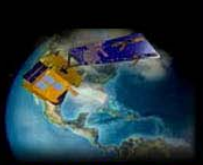
Earth Observing-1

GODDARD SPACE
FLIGHT CENTER

August 2002

New Millennium Program Goals

- ***The New Millennium Program (NMP) was established in 1994 to:***
  - *Flight-validate revolutionary technologies;*
  - *Reduce development risks and life cycle costs of future missions;*
  - *Enable highly capable and autonomous space systems; and*
  - *Promote nationwide technology teaming.*



What is EO-1?

August 2002

- *First Earth-Observing Mission sponsored by the New Millennium Program*
- *A mission devoted entirely to the flight validation of 13 advanced technologies applicable to future land-imaging missions*
- *Approved in March 1996 and launched in November 2000*
- *All technologies were flight-validated by December 2001 and EO-1 is now in an Extended Mission*

Launch

- *EO-1 was successfully launched on November 21, 2000 on a Delta 7320 from Vandenburg Air Force Base, California*
- *The desired orbit was readily achieved and, following orbital check-out, the first images were taken on November 26, 2000*

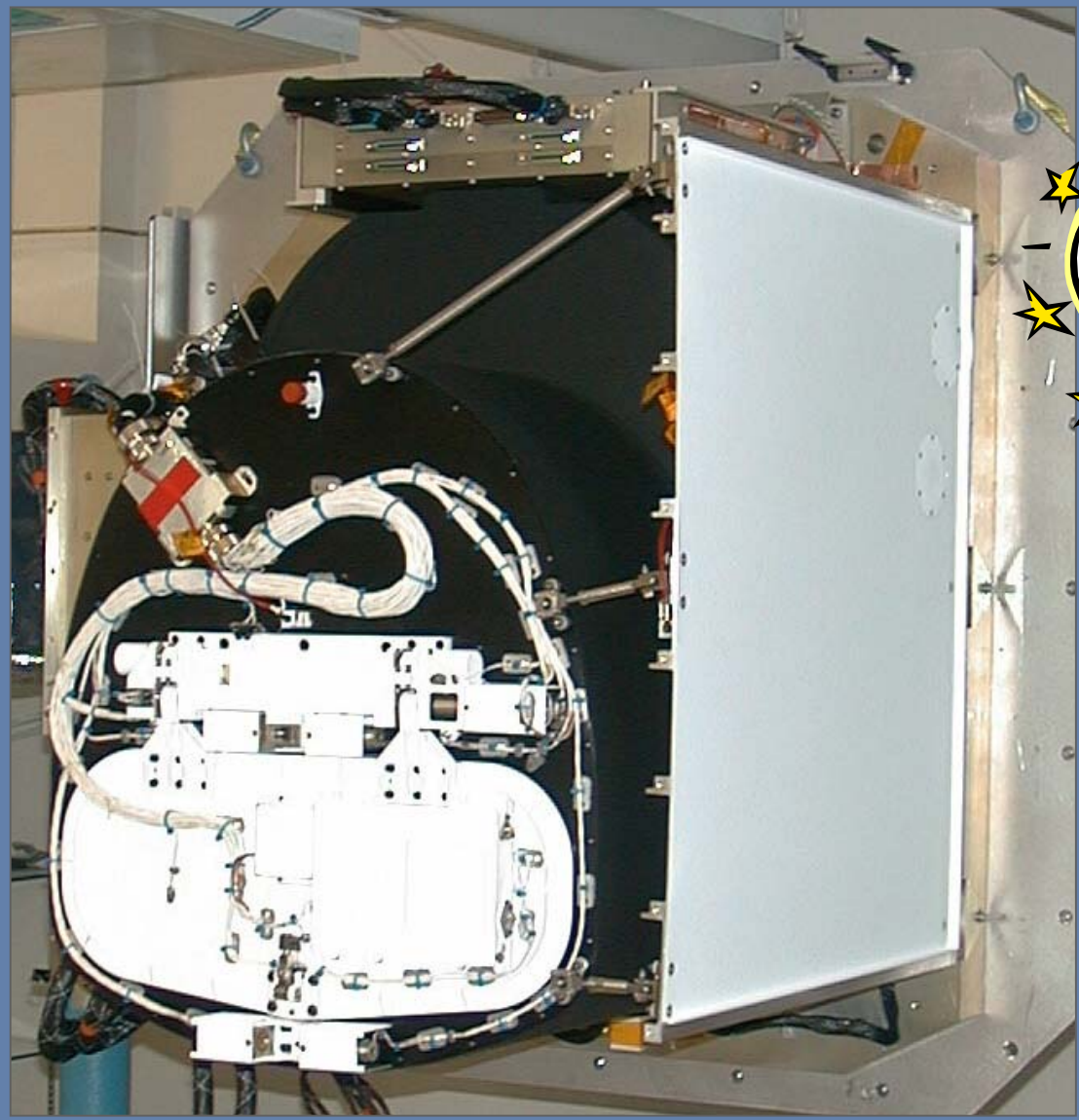
Current Status

August 2002

- *All NMP mission objectives were accomplished within 13 months of launch as planned*
- *EO-1 now beginning 21st month of operation and is now in an Extended Mission based on a partnership with the U.S. Geological Survey (USGS)*
- *EO-1 is fully functional and has spacecraft consumables to last at least another two years*
- *EO-1 Science Validation has revealed numerous scientific applications for the Advanced Land Imager and the Hyperion*
- *Continuous Improvements to Operations have steadily reduced the cost of imagery*

During this 21-month period, the cost of imagery has declined from $7,500 / set in the first month of operation to $1,100 / set in the 16th month of operation

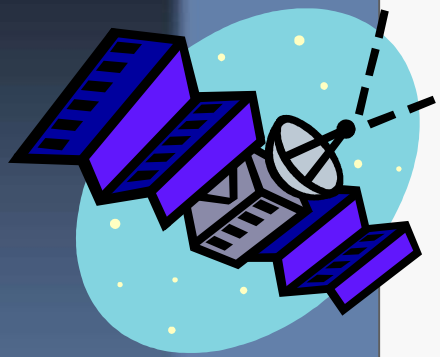
Advanced Land Imager

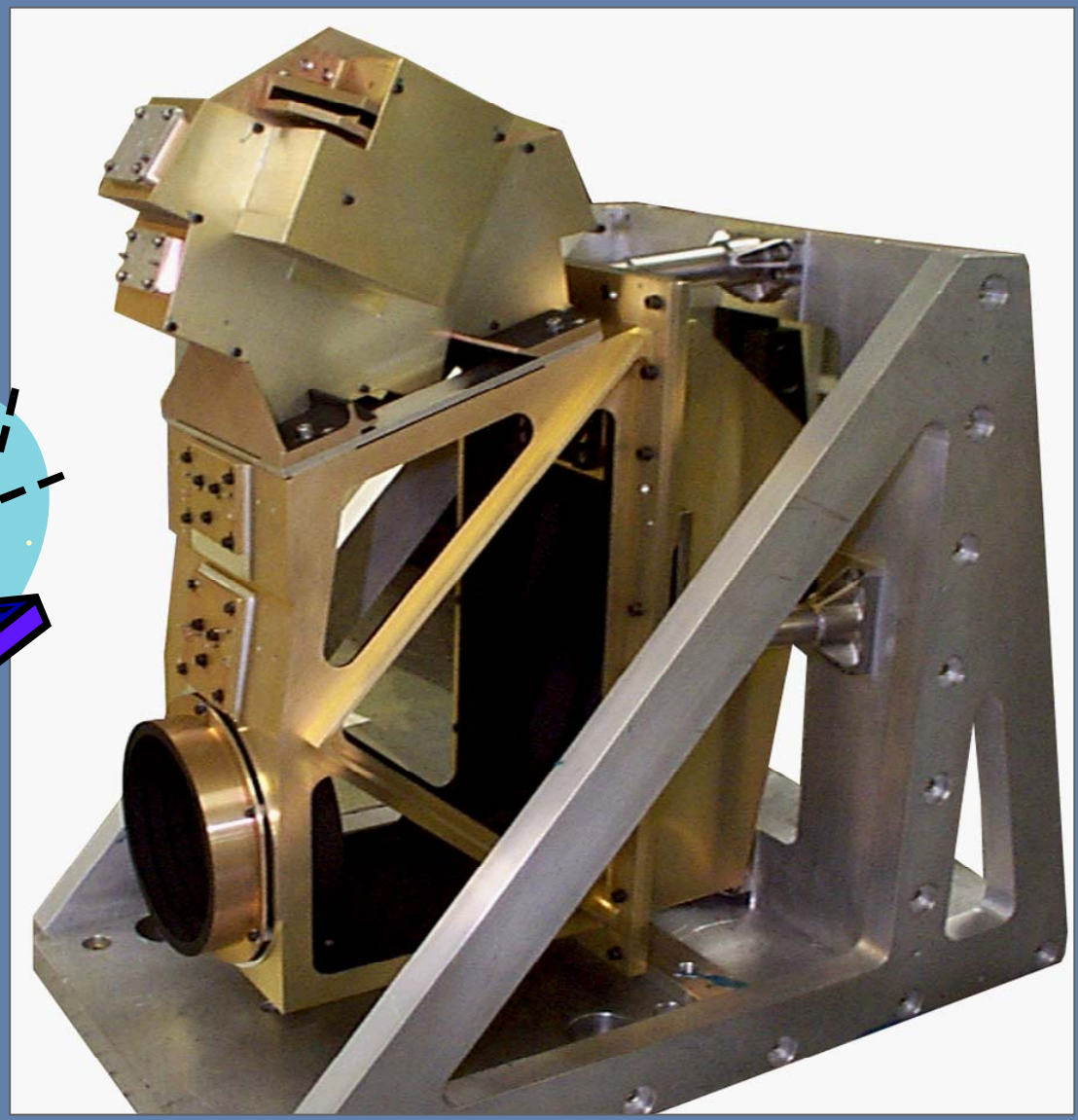


Advanced Land Imager:

MIT Lincoln Lab, GSFC, Raytheon / Santa Barbara Remote Sensing, & Sensor Systems Group

Hyperion

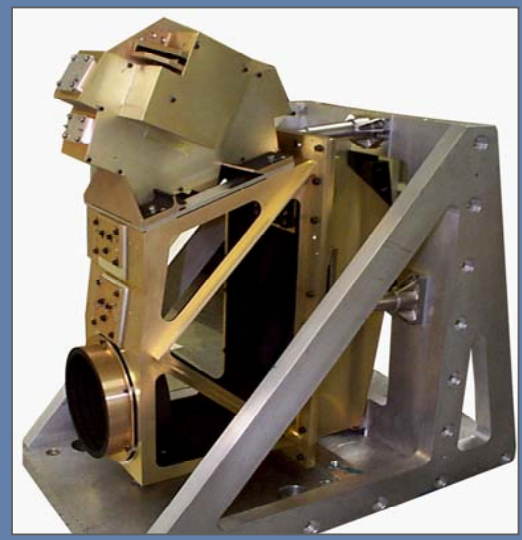




Hyperion:

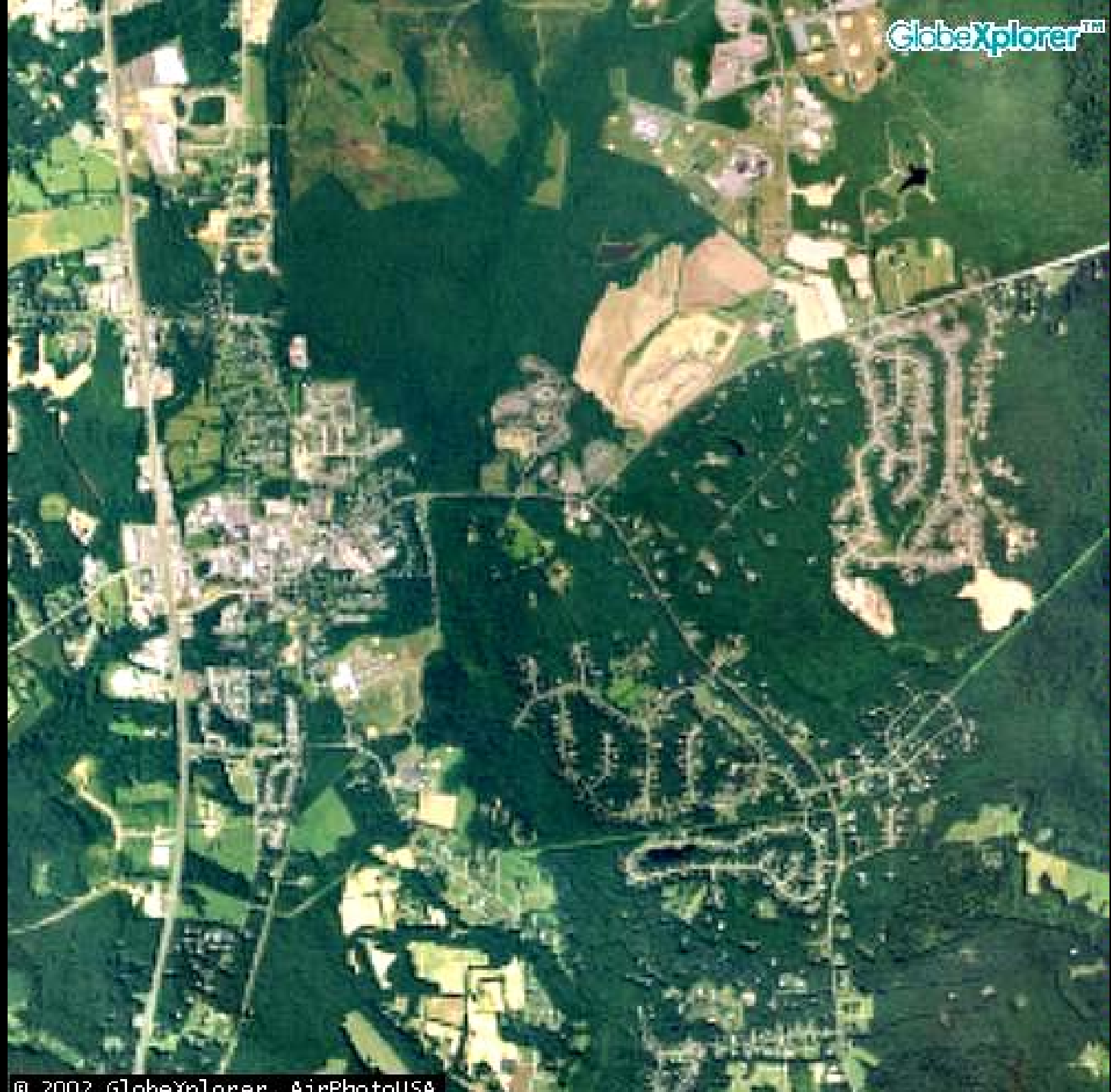
TRW, GSFC, JPL

Examples of EO-1 Results



- **ALI:**
  - LaPlata
  - Pearl Harbor
  - Mt. Etna
  - Manhattan

- **Hyperion:**
  - Coleambally Irrigation Area, Central Australia
  - Argentina


GlobeXplorer™
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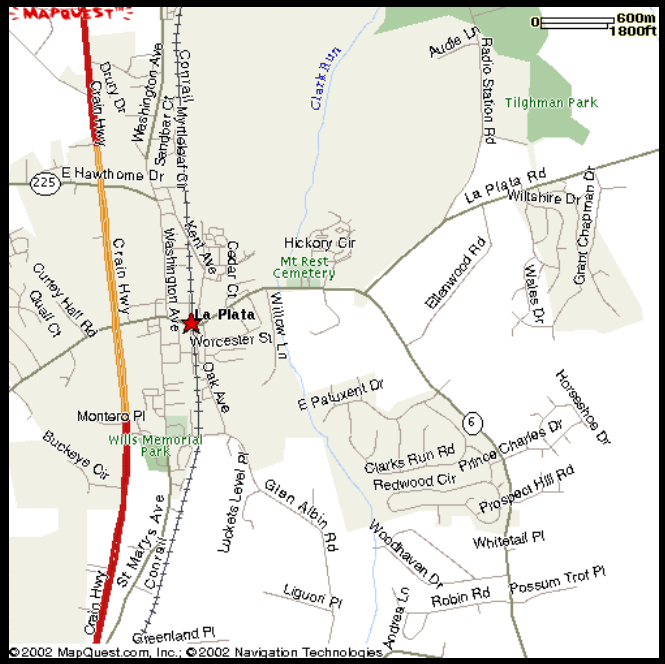
Air-photo
Coverage
Area

La Plata, MD Tornado Scar

EO-1 ALI Pan-sharpened image below was taken on May 1, 2002. MapQuest map and air-photo to left are of pre-tornado vintage.



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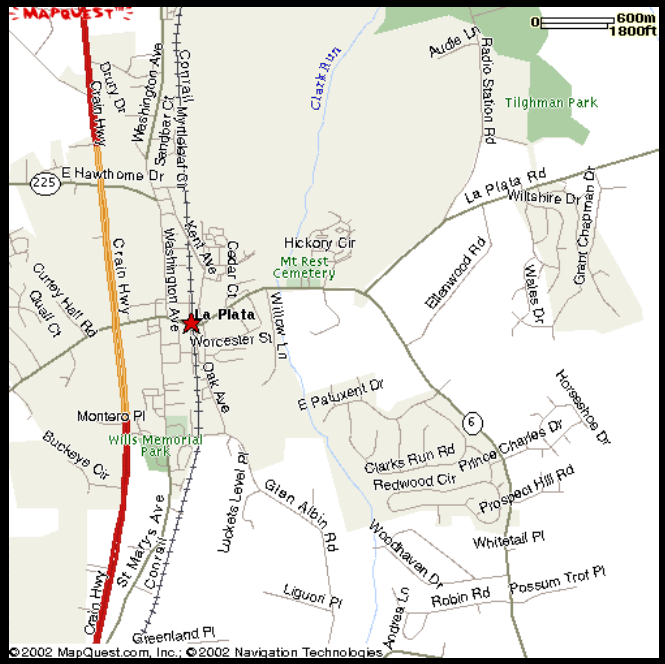

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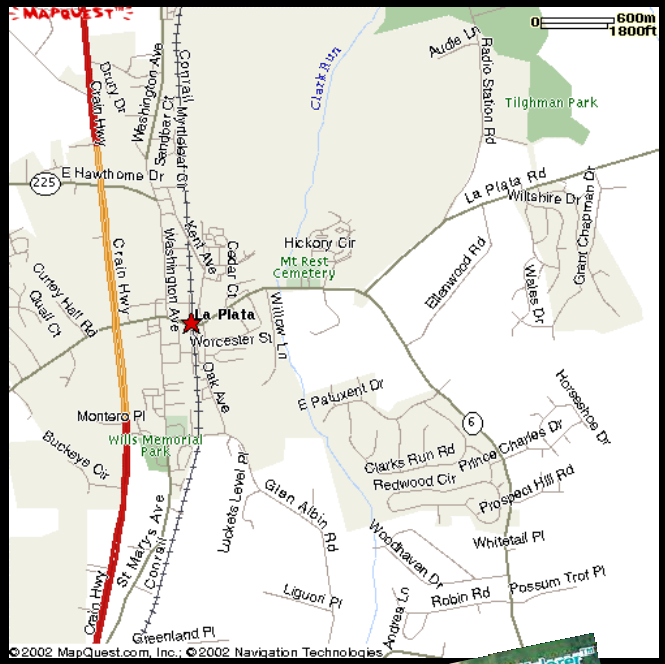

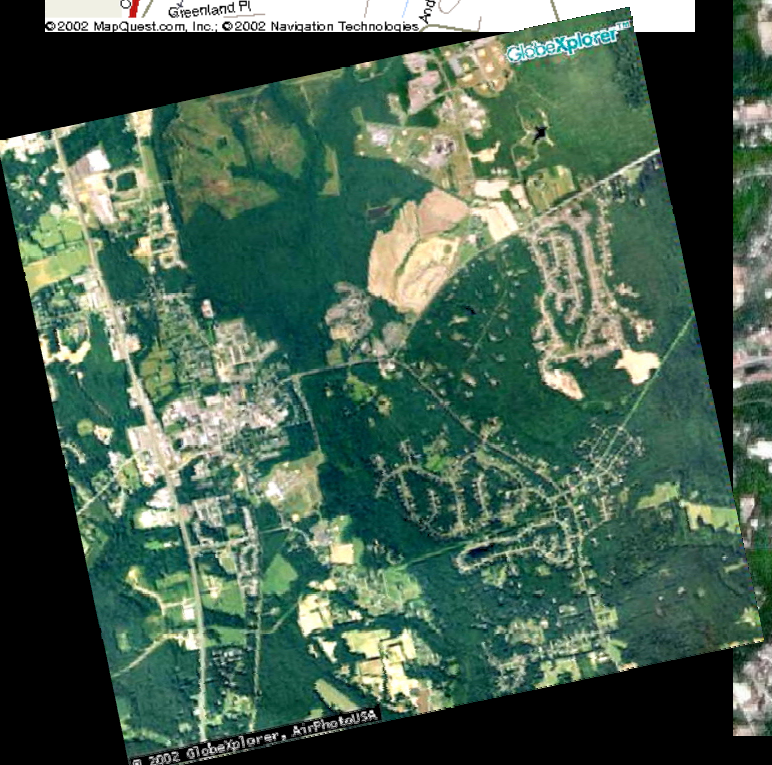

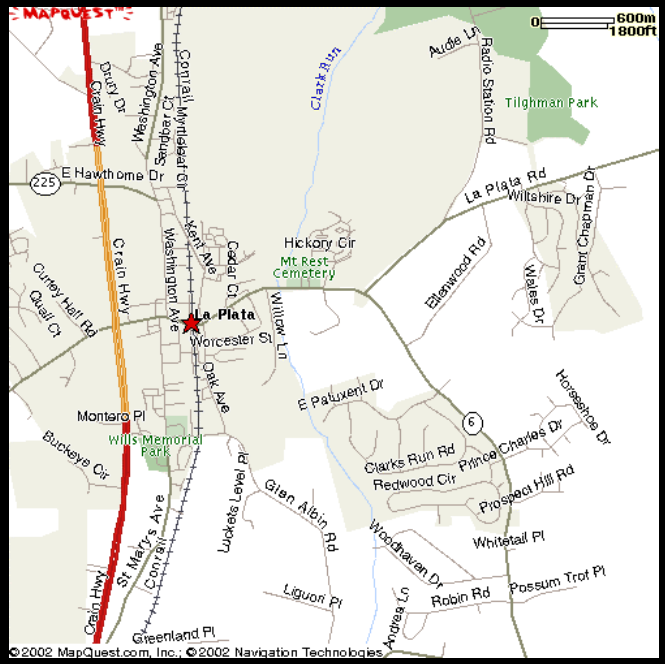

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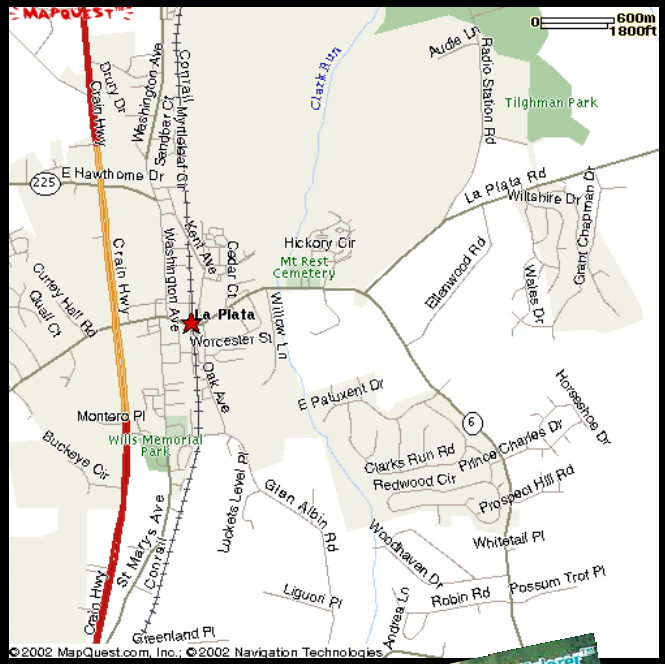

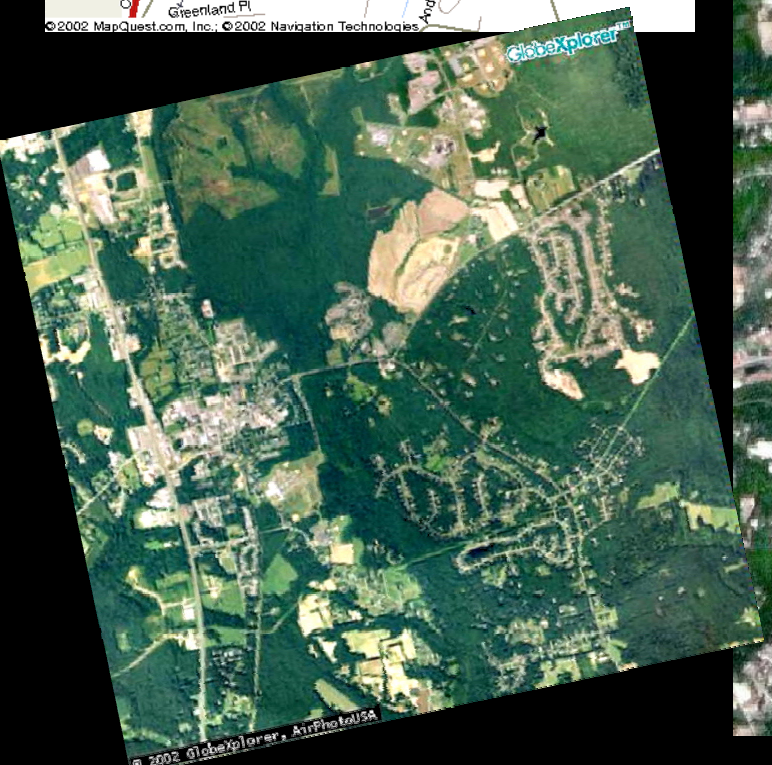

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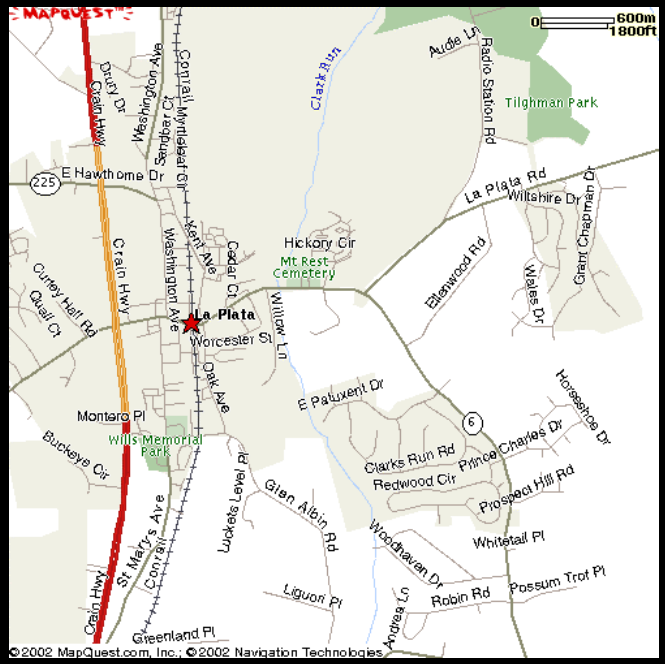
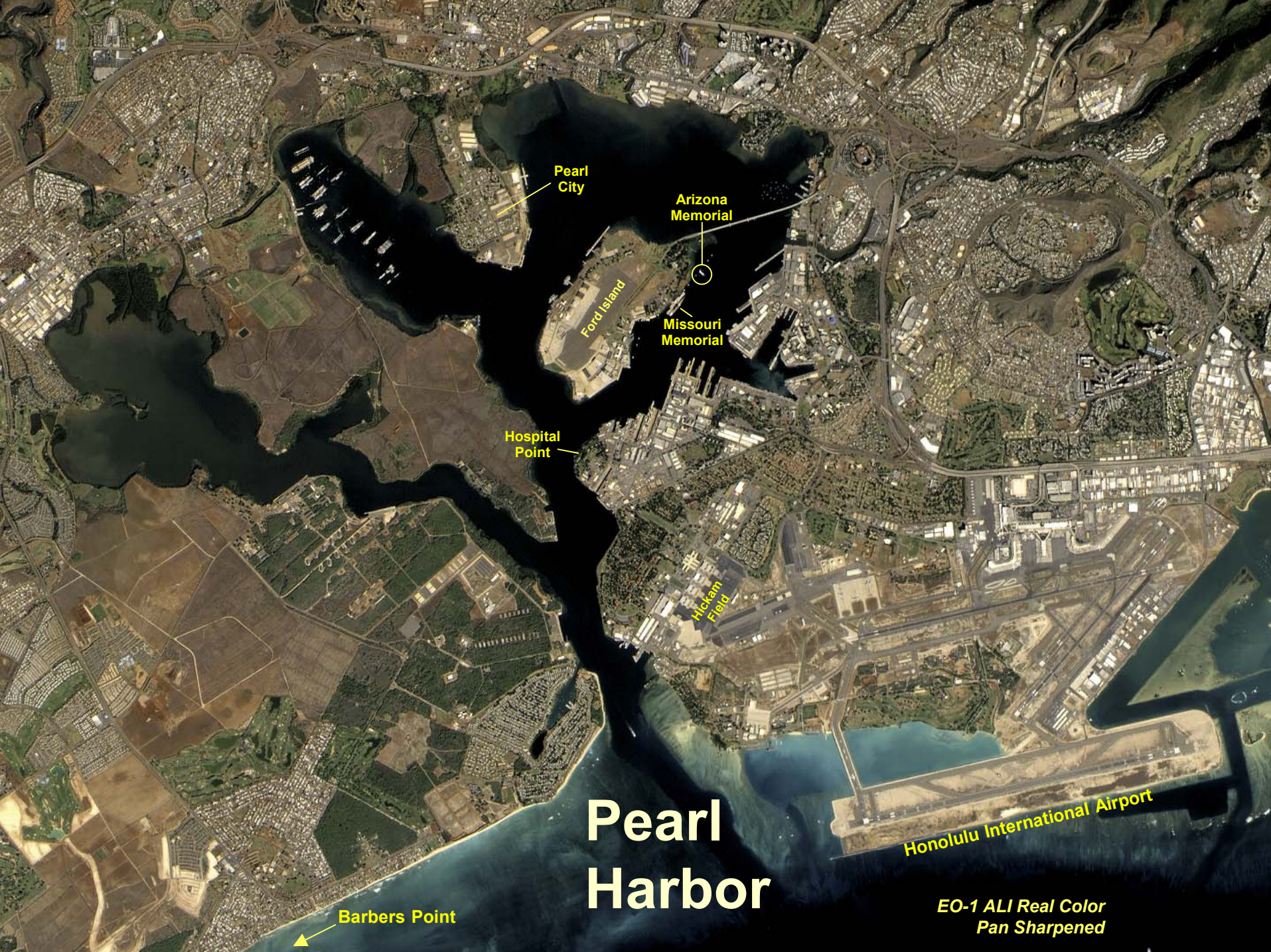
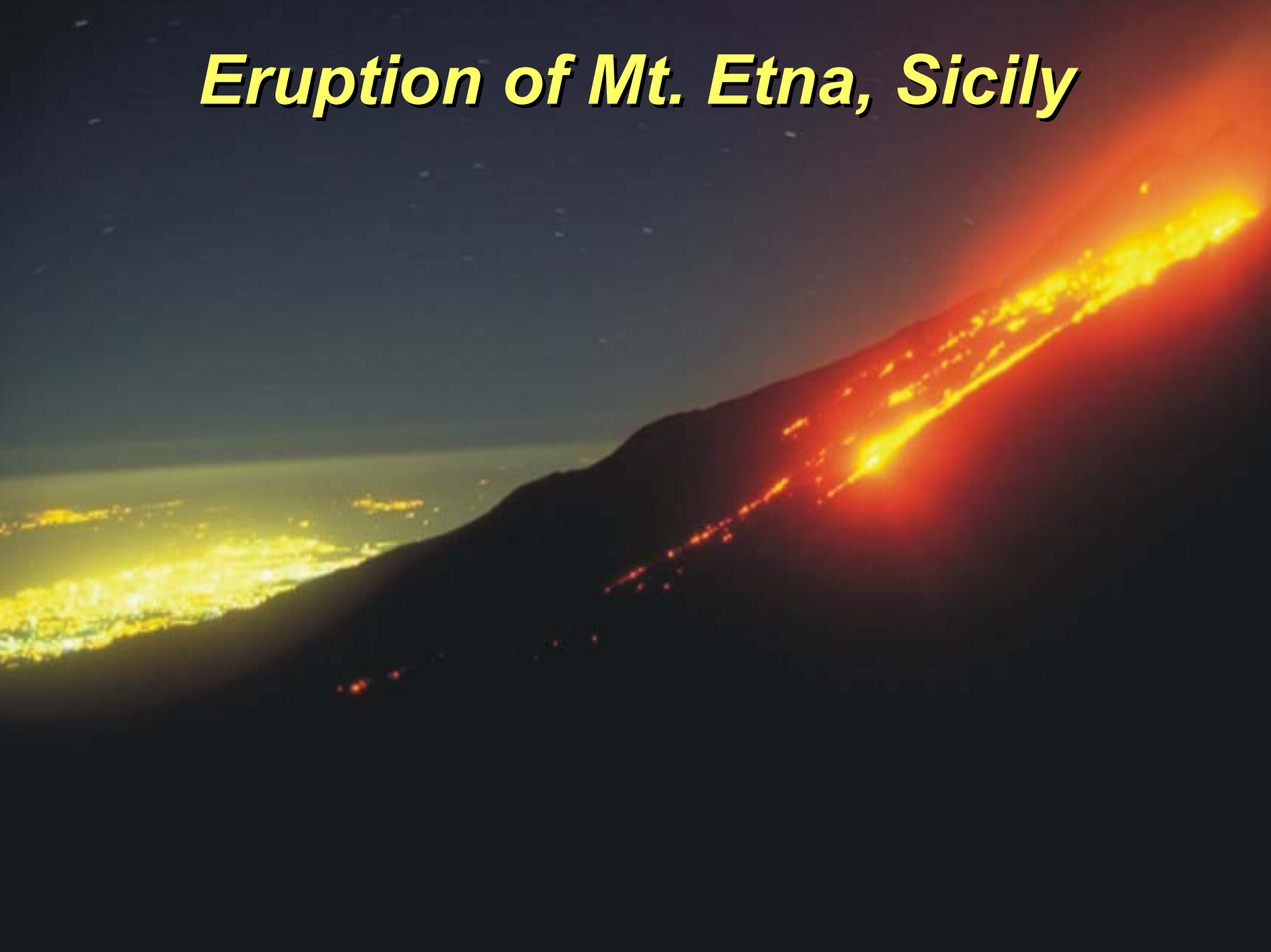



Pearl City
Arizona Memorial
Ford Island
Missouri Memorial
Hospital Point
Hickam Field
Pearl Harbor
Honolulu International Airport
Barbers Point
EO-1 ALI Real Color
Pan Sharpened


Airplane on Taxiway
Honolulu International Airport
Pan Sharpened ALI Real Color

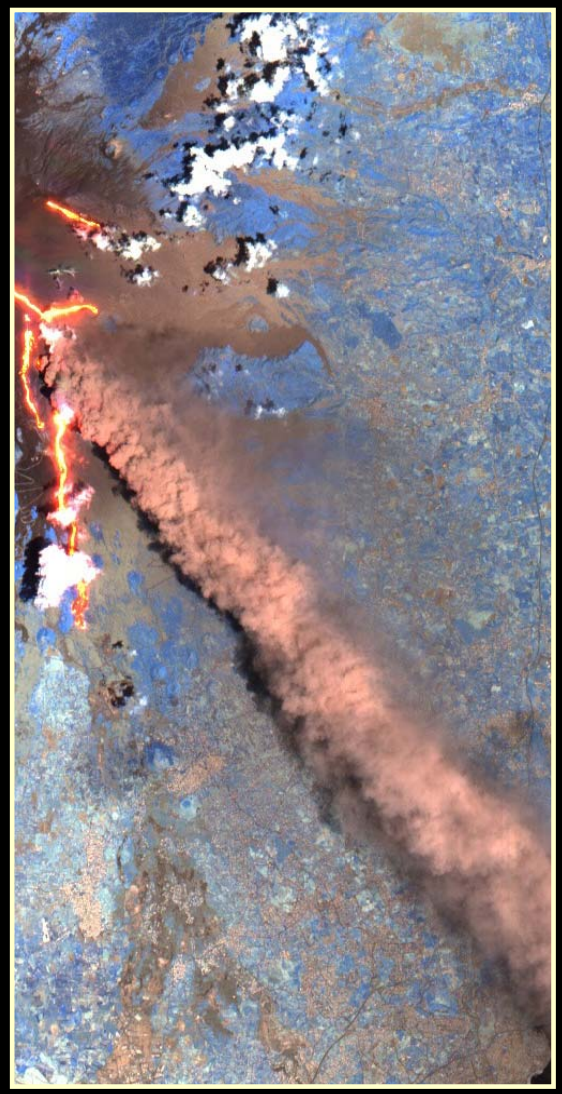

Eruption of Mt. Etna, Sicily

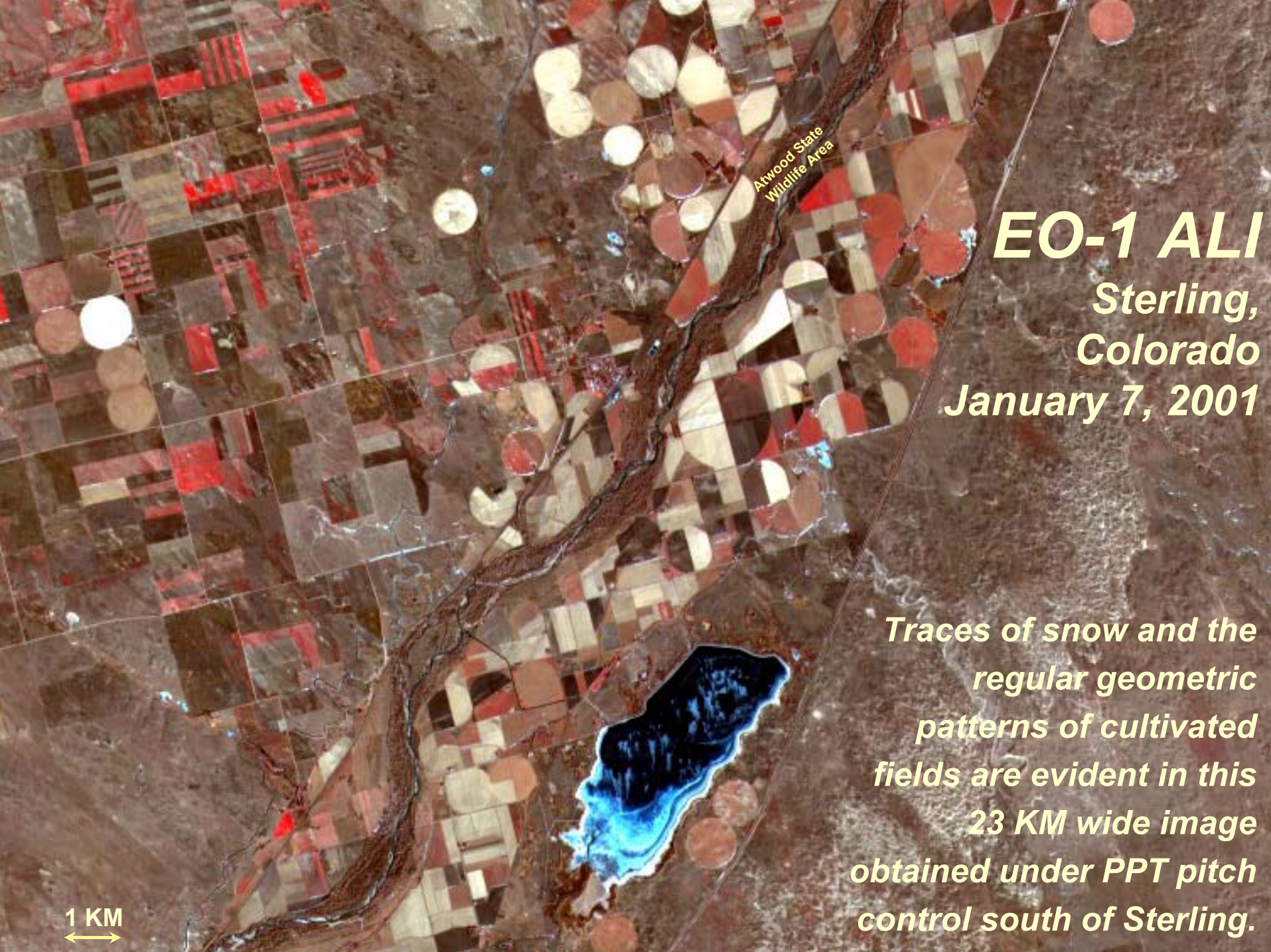
Mount Etna - July 22, 2001

ALI Pan Enhanced
Bands 3-2-1

Hyperion
7-5-4 Equivalent

EO-1 ALI
Bands 7-5-5'





EO-1 ALI

Sterling, Colorado
January 7, 2001

Traces of snow and the regular geometric patterns of cultivated fields are evident in this 23 KM wide image obtained under PPT pitch control south of Sterling.

Manhattan, New York - EO-1 ALI Pan Band

March 13, 2001

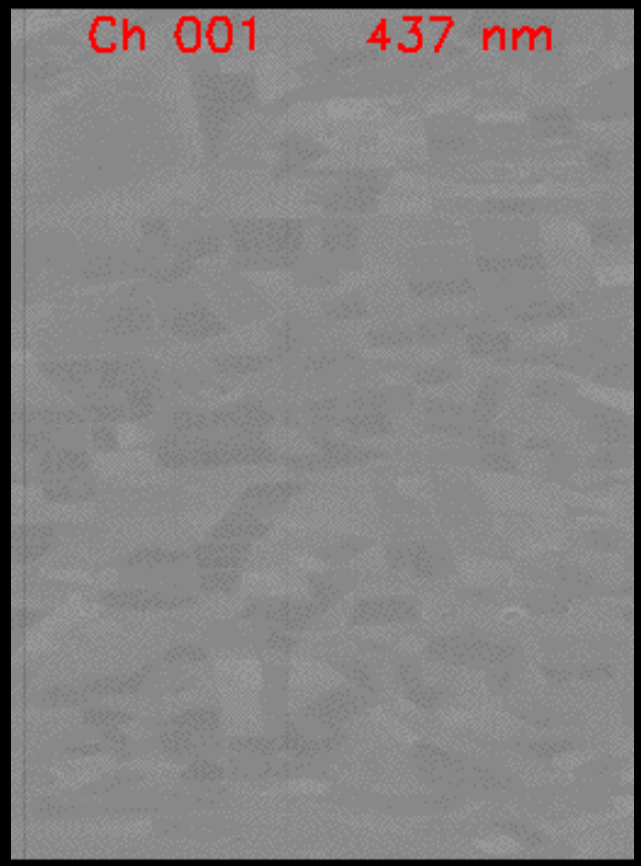
September 12, 2001

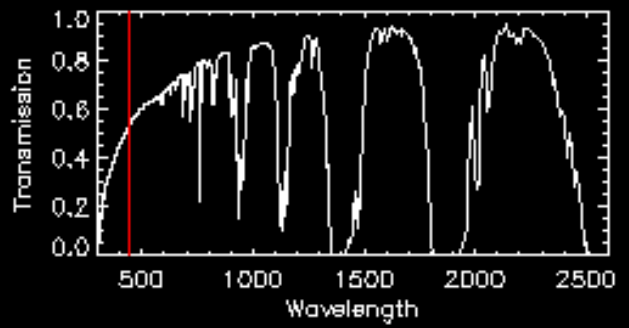

NYC – Sept. 12, 2001
EO-1/ALI Pan Enhanced
3-2-1 Color Composite

View of Hyperion Spectral Data

Green-Red-NIR False-color Image

-Coleambally Irrigation Area – Central Australia





Summary

- *EO-1 has performed beyond expectations and has demonstrated many new applications for both multispectral and hyperspectral remote sensing of the Earth*
- *Continuous improvements in EO-1 operations have resulted in a six-fold reduction in the cost of EO-1 imagery while achieving a four-fold increase in the data collection rate*
- *These operational improvements are widely applicable to future missions*